



MERIDIAN

Spring 2008

News

Meridian's new Muse

Meridian made the financial news recently, following the involvement of Muse, a consortium of partner investors assembled by movie producer Arnon Milchan. The Muse group includes Swiss luxury goods group Richemont, and the principals of Consolidated Press Holdings Limited and Trian Fund Management. Bob Stuart, Meridian's Chairman and Chief Technology Officer talks about what it means.



Stuart: "A fantastic next step"

"I am personally very excited by the enormous opportunity the Muse investment gives us. The group's members share our values exactly: high-performance, superb technology, unequalled quality, and brand development. Indeed, the principal of every company making up the group had already selected Meridian systems for their enjoyment. They see the potential of the company and wish to assist in its growth.

"Meridian has always been at the high end of the consumer audio industry. Muse brings expertise and resources to help us develop distribution and to position us in the fields of international luxury, lifestyle and technology.

"We can now invest more in our dealers and distributors, in expanded resources for new products and technology developments, and not least for marketing, to enhance brand visibility, as has already been the case with the F80.

"Our factory in Huntingdon remains the prime manufacturing location for our entire range. Our traditional commitment to unique, innovative, high performance audio and video products remains unaltered and is still passionately guided by myself and Allen Boothroyd. We remain in control of our own company and have recently built up a superb world-class executive team. You can expect exciting times ahead with Meridian.

"Over 30 years Meridian has developed a pure, revered and trusted brand with strong traditions. This investment represents a fantastic next step to enable us to carry our message to a wider audience and to work smarter with our dealer and distributor network."

*Bob Stuart, Chairman
& Technical Director*

Praise in Vegas



DSP7200 (left) and 808.2

This year Meridian moved into the Venetian hotel with the 'High End' companies, showing a wide range of products in a multi-room suite.

In one room was the new 808.2 with its special new digital filter (see *separate story*) and a pair of new DSP7200s (*above*), drawing this comment from commentator Robert Harley, who gave it a 'best in show': "CDs... sounded like high-resolution recordings." Both the 7200s and the 808.2 include our new "SpeakerLink" CAT-5-based interfacing system.

We also had a room for the F80, once more widely praised. Robert Harley again: "The show's biggest surprise was the huge, transparent, extremely dynamic, and tonally pure sound that emerged from the tiny Meridian F80.... This tabletop package sounded like a full-scale, high-quality hi-fi – an amazing achievement."

In this issue...

- What the Muse investment means.
- Meridian wows the crowds at the recent CES in Las Vegas.
- A look at the new slot-loading G Series components.
- Find out what makes the new 808.2 CD Player really special.
- The inside scoop on Meridian's unique Room Correction technology.
- Inside Meridian: Surface mount tech.
- Meridian *in the Movies* – a look at the new sci-fi action flick *Jumper*.
- Canadian Success Story – Selling F80s in Regina.
- The press on the F80.

New Products

It's about time: CD delivers on its promise

For a quarter of a century, Meridian has been making the finest audiophile CD players. And now, with the 808.2, we have made our best ever. But how - and why?

Meridian has been deeply involved in developing technologies for higher quality sound and for higher resolution delivery. In fact, our technology was chosen to give the ultimate sound on DVD and blue-laser formats.

But, for a music lover the overriding factors in selecting content are first the catalogue, then quality and finally convenience.

CD has an amazing depth of catalogue, and if you are looking for a piece of music, chances are that it's on Compact Disc and you have a choice of recordings. You may find a download, but the quality or value will be lower and no matter how fine a new niche format may sound, if the music you want isn't available then it has only passing interest.

All the more reason, then, to continue our quest to make Compact Disc sound the very best it can. 808.2 inherits Meridian's 25-year tradition of award-winning players, yet sets a whole new benchmark.

Several features contribute to its exceptional performance – such as the SpeakerLink RJ45 socket that

allows single-wire connection to speakers like the new DSP7200, (about which more in a future *Meridian News*) – but the most significant is the new, proprietary digital filter system developed by Meridian and included for the first time in the new 808.2.

High-resolution audio prefers sample rates and bit depths higher than the 44.1kHz 16-bit CD format. For this reason our top-end CD players have incorporated resolution enhancement which includes upsampling. 808.2 perfectly upscales its outputs to 176.4kHz and 24 bits, significantly improving the sound.

But upsampling alone cannot improve on one aspect of CD: the original sampling rate of the recording. Digital audio captures sound up to half the sample rate and you have to filter out any meaningless information above that frequency (22kHz in the case of CD).

Traditionally, the steep filters required to do this job have audibly degraded the sound. The earliest analogue filters caused enormous phase shifts at high frequencies, and with digital linear-phase filters a big issue was the introduction of pre-echoes.

Meridian's goal was to invent a technology which stripped away this fundamental limitation in the making of the CD, taking the listener right

back to the original higher-resolution sound – no mean ambition, nor a trivial task. Meridian's founder, Bob Stuart, was sure that high-definition sound could be achieved without excessive sample rates – if the filters were right.

Bob authored an Audio Engineering Society paper on high definition audio in 2004,* in which he recommended the development of 'apodizing' filters – filters that were minimum phase, with no ripple, causing no pre-echo: and thus offering perfect timing. He predicted they would even be able to fix problems in the origination process itself.

Meridian's research team and Peter Craven, a long-term Meridian consultant, designed an exquisite new filter to meet these requirements, and its first appearance is in the 808.2. It needs significant DSP capability to deliver, using much of the power of the player's 150MIPS main processor. This filter system is so effective that it can even correct errors made in the recording or mastering stage – CDs played back on the 808.2 can sound even better than they did in the studio!

Bob Harley, editor of *The Absolute Sound*, recently reported: "CDs played through the 808.2 and the new DSP7200 active DSP loudspeaker sounded like high-resolution recordings". Why not listen for yourself?



*We will be making this and other relevant papers available on the Meridian web site shortly.

Meridian in the Movies

Meridian 'Jumps' on to the screen



In the first of what is set to become an increasingly common occurrence, Meridian systems can be seen on the big screen in the New Regency sci-fi thriller movie *Jumper*, based on Steven Gould's debut novel of the same name.

Directed by Doug Liman (*The Bourne Identity*, *Mr & Mrs Smith*) and starring Hayden Christensen (*Anakin Skywalker* in *Star Wars*), Jamie Bell and Rachel Bilson, the story revolves around David Rice (Christensen) who, thanks to a genetic anomaly, can teleport himself virtually anywhere - even thousands of miles away.

This gift has been passed down for centuries, but for thousands of years a war has been raging between the "Jumpers" and those who are trying to kill them.

David's New York apartment is chock-full of goodies including a pair of Meridian DSP8000s (you can see them to left of the picture shown above) and other Meridian gear. Meridian equipment is also visible in the trailer.

Visit www.jumperthemovie.com to find out more. The film opened across the world on February 14, 2008.

G Series hits the slots



On show in Vegas - and shipping shortly: a whole set of new G Series components, showcasing new moves in player technology.

The G95 all-in-one DVD surround receiver we introduced last year had, for the first time in a Meridian component, a slot-load DVD drive.

We had performed a number of tests and found that a robust, automotive-quality DVD-ROM drive was capable of giving better results in a player than the existing tray-loaders, and also was less prone to damage than the traditional sort.

But would it catch on with the public? It soon emerged that the answer was a resounding yes!

As a result we decided to implement the same style of drives in our complete range of G Series CD and DVD players.

The new models include two CD players, the G06.2 and the G08.2, which replace the G06 and G08 respectively.

As far as DVD players and transports are concerned, first of all the G91A is replaced by the new G92. This is effectively a version of the G95 without amplifiers, which you can use either with Meridian digital loudspeakers or with the power amplifier and speaker combo of your choice. We have also introduced the new G96 DVD-Video/CD transport as a replacement for the G98.

Technology

The miracle of Meridian Room Correction



Meridian's 861 Digital Surround processor – first with Room Correction

Being able to treat a room acoustically to get the best sound is something most of us can only dream about. Unless we own a recording studio or a purpose-built listening room or Home Theatre, the fact remains that the place where we do our listening also has to perform other functions, many of which are not conducive to good acoustics.

Most problematic of these acoustic shortcomings are reflections. Many living rooms are box-shaped, with parallel walls. If these are not fitted with curtains or other absorbent materials, they will be reflective and sound will bounce between the opposite walls. This sets up what are called “standing waves” at different frequencies, and you can hear these as places in the room where sounds of a particular pitch sound markedly louder or softer. One result is that certain notes ring on longer than they should, muddying the bass end and interfering with the image.

The traditional way of dealing with this is with “room equalisation”, to make the room “flat”, which of course isn't really about equalising the room at all – it's about equalising your audio system, and your audio system, if it's half-way decent, is probably fine. There are also severe problems in store for you if you simply measure the frequency response of the room and invert the curve - that approach can cause you to run out of amplifier power

at certain frequencies, for example... and do you *really* want a “flat” room? What you really want to do is to smooth out those standing waves.

This is fiendishly difficult to do, however, and until Meridian successfully achieved it a few years ago, it was only available in very expensive professional systems – and even they didn't do it the way that Meridian Room Correction (MRC) does it.

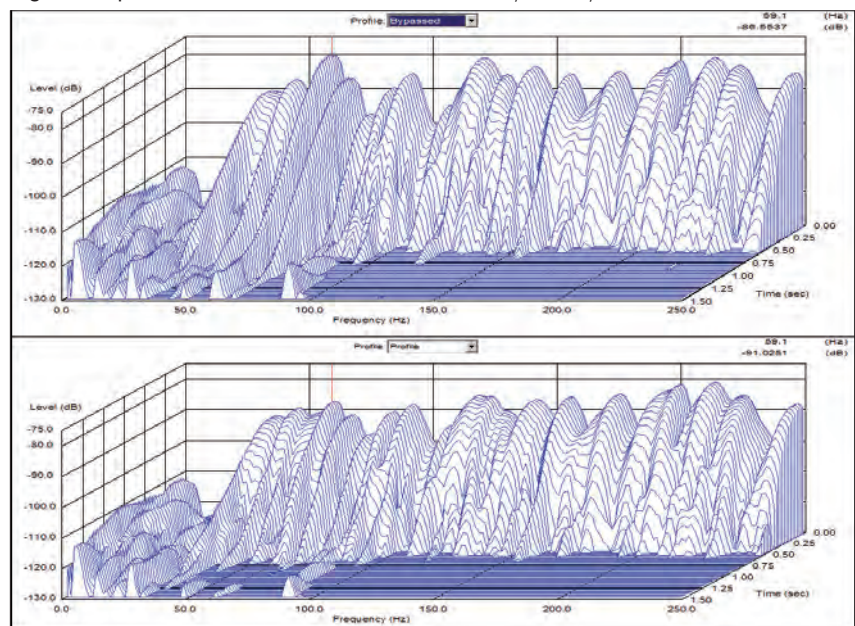
The first thing to note is that MRC does not tackle all frequencies. At higher frequencies the nodes in a

room get very complex and unstable – and in addition, they make a much smaller contribution to the sound. Thus MRC focuses on low frequencies. Secondly, MRC builds filters that attenuate and do not boost – so there's no likelihood of running out of oomph.

With MRC, first you measure the room – typically with the microphone built into a sound pressure level meter. MRC is a feature of Meridian's digital surround processors and these make the process semi-automated: you plug in the mic, hook up a computer and press a few buttons. The system then performs a series of measurements and works out what filters it needs to implement to smooth out those troublesome bass resonances.

The results are fed back into the processor which uses its powerful DSP capability to build as many filters as are necessary to bring your room under control. You can even tweak the filters if you feel you need to, and see “before and after” waterfall plots of the room acoustics (*below*).

Today, MRC is included in all our digital surround processors – the C61R, G61R, G68 and 861.



'Before' & 'After' waterfall plots show how resonances have been smoothed.

Inside Meridian

Surface Mount



Most of Meridian's manufacturing occurs in our factory near Cambridge.

The vast majority of manufacturing processes that go into making a Meridian product are carried out in our purpose-built factory headquarters. In this series we will look at the processes involved and the people who carry them out.

Meridian Audio units and systems make great use of surface mount technology – in common with most modern electronic products – as well as conventional components. As the name suggests, surface mount components sit on top of a circuit board and are soldered in place from above, unlike convention components with leads inserted through the board and secured from beneath.

Surface-mount components are very small, allowing extremely high component densities and thus more compact circuit boards and products – but by the same token they are

virtually impossible to assemble manually: it has to be done by precision equipment. Meridian has two of these expensive machines, running side-by-side.

Components are fed in attached to tapes and automatic arms under precision computer control grab them and position them in exactly the correct positions on the board at lightning speed, to an accuracy of hundredths of a millimetre. The components are then soldered in place – lacking leads, they have to be attached immediately.

Meridian Audio is a pioneer in surface-mount technology, along with multi-layer printed circuit boards that allow higher component density and better-sounding audio by reducing trace lengths between components and adding the ability to insert ground-planes between adjacent layers to minimise crosstalk, noise and hum.



Meridian in the news

High praise

The Meridian F80 all-in-one transportable entertainment system has come in for a great deal of praise since its launch this time last year. Indeed, it's been one of the most widely-lauded Meridian products ever – and the most popular.



In the UK, the F80 has already received three awards, *Inside Hi-Fi* naming it 'Product Launch of the Year', *Hi-Fi World* labelling it 'Best System' and *What Hi-Fi Sound & Vision* awarding the F80 'Best All-in-one system over £500'.

In the United States, *The Perfect Vision* gave the F80 an Editor's Choice Award, while the prestigious *Robb Report* made the F80 one of its ten Best Products for 2008.



Meanwhile, the press has waxed lyrical about the product. *What Hi-Fi? Sound and Vision* called it "a work of genius", and went on, "A brilliant portable system that even a purist audiophile can easily listen to for hours on end." *Hi-Fi World* said, "One of the most interesting products to hit the market for years, this is a brilliantly designed and made compact music system." *Stuff* simply called it "micro-dynamite!"

Meridian around the world

Harry's game – A Canadian success story



Pat and Harry – er, Vern – with an F80 and a signed Joni Mitchell poster

Regina is the capital of the Canadian province of Saskatchewan, with a population of under 200,000 people. In the heart of Canada's prairies, it's both a cultural and commercial centre, not only for southern Saskatchewan but also for nearby North Dakota and Montana. Numerous visitors make their way to the city at all times of year to enjoy the theatre, concerts and restaurants - and, not least, its 'Buffalo Days' agricultural exhibition held every summer and established in 1884, two years after the city was founded.

Pat and Harry – well, Harry's real name is Vern, but he's been known as Harry ever since he started in the audio business – founded Harry's Hi-Fi in 1983. Located at 1437 Rose Street, the store is pretty well slap-bang in the middle of Saskatchewan's capital city. Their avowed belief is that "the people of Saskatchewan want and deserve high quality audio equipment in as wide a price range as possible." So goes their 'Zen of High End', which also states that "There are only two kinds of music - good and bad." They are also proud to say that their customers "deserve the honest, individual, friendly and dedicated service which is more and

more lacking in today's soulless retail environment".

In addition to selling systems and components straight out of the store, Harry's Hi-Fi works with other local companies where needed to custom design systems, from simple one or two room installations to complete home theatre setups. They've spent many years choosing exactly the manufacturers with whom they wish to partner, from quite inexpensive

to the very definitely high-end, and we are pleased that they chose to showcase Meridian's F80, the new transportable entertainment system co-branded with Ferrari - and immediately began promoting it, selling a dozen units off the bat. "We are very satisfied with progress," says Harry, "especially considering that our city has a population of about 190,000 people and we are surrounded by wilderness!" Harry's has taken the step of dedicating an entire room to the F80. "The room was formerly referred to as 'the room of doom'," Harry laughs, "since we didn't know what in hell to do with it and were considering dedicating it to a video theatre room. We are now convinced that it is being much better served and are looking forward to placing in it whatever other little gems your company has coming." And indeed there will be some more products in that vein in due course, Harry.

So what do Harry and Patricia think of the F80? "We are most impressed with the product in all regards," Harry tells us, "and congratulate Bob and Allen on creating a unique, versatile, stunningly beautiful player that sounds as good as it looks." Well, thank you, and keep up the great work!

